

Claims

1. An isolated mammalian epididymis-specific receptor protein which has the amino acid sequence shown the in SEQ ID NO: 2, or a derivative or fragment thereof having at least one biological activity and/or immunogenicity of said protein.
2. A protein of claim 1 wherein said derivative or fragment is a hydrophilic region of said receptor.
3. A protein of claim 2 wherein said derivative or fragment is an extracellular hydrophilic region of said receptor.
4. A protein of claim 1 having a sequence represented by SEQ ID NO: 2.
5. A protein of claim 1 herein said fragment is selected from the group consisting of any one of SEQ ID NO: 3-7.
6. An isolated DNA sequence which codes for the receptor protein or an active derivative or fragment thereof having the same biological activity and/or immunogenicity, according to claim 1.
7. An isolated DNA sequence which codes for a protein of claim 3.
8. An isolated DNA sequence which codes for a protein of claim 4.
9. An isolated DNA sequence according to claim 6, chosen from

a) the nucleotide sequence shown in SEQ ID NO: 1,

- b) the sequence of nucleotides 1 to 3,114 of SEQ ID NO: 1,
- c) a sequence homologous to the sequence represented by SEQ ID NO: 1 having a degree of homology of at least 70% and
- d) a syngenic or complementary sequence of a sequence according to a), b) or c), or a fragment thereof, where said sequence codes for a protein or polypeptide having the same biological activity and/or immunogenicity as said protein or active derivative or fragment.
10. A vector molecule, comprising at least one of the DNA sequence according to claim 2 as an insert, while maintaining the ability to replicate in a suitable host cell.
11. A vector molecule according to claim 10, wherein said DNA sequence is inserted in said vector, in a manner such that expression thereof can take place in a suitable host organism.
12. A prokaryotic or eukaryotic host cell transformed with a vector molecule according to claim 10.
13. A prokaryotic or eukaryotic host cell transformed with a vector molecule according to claim 11.
14. A process for the preparation of an isolated mammalian epididymis-specific receptor protein, which has an amino acid shown in SEQ ID NO: 2 or a derivative or fragment thereof having at least one biological activity and/or immunogenicity of said protein, said process comprising culturing a host cell according to claim 12 in a culture batch under conditions which allow expression of the DNA sequence, and

obtaining the expression product from the culture batch.

15. An isolated antibody, which reacts with and is specific to at least one epitope included in a protein or polypeptide according to claim 1.
16. The antibody of claim 15 wherein said antibody is a monoclonal antibody.
17. A pharmaceutical composition which comprises one or more of the proteins or polypeptides according to claim 1 as an active component.
18. A pharmaceutical composition which comprises at least one antibody according to claim 15 as an active component.
19. A pharmaceutical composition which comprises, as an active component, at least one nucleotide sequence which hybridizes with a nucleotide sequence according to claim 6.
20. A pharmaceutical composition according to claim 19, further comprising a detectable marker.
21. A pharmaceutical composition according to claim 17 for diagnosis of male reproduction disorders.
22. A pharmaceutical composition according to claim 17 for treatment of male reproduction disorders or for contraception.
23. A method of isolating a ligand specific for an epididymis-specific receptor comprising incubating the epididymis-specific receptor with a substance suspected to be a ligand of said receptor and detecting

binding of said receptor to said ligand.

24. A method according to claim 23 wherein said ligand is an agonist of said epididymis-specific receptor.
25. A method according claim 23 wherein said ligand is an antagonist of said epididymis-specific receptor.
26. A method of treating infertility in a male mammal comprising administering an agonist of an epididymis-specific receptor to said male mammal.
27. A contraceptive method for male mammals comprising administering an antagonist of an epididymis-specific receptor to said male mammal.
28. A method of treating infertility in a male mammal comprising administering an agonist of an epididymis-specific receptor of claim 1 to said male mammal.
29. A contraceptive method for male mammals comprising administering an antagonist of an epididymis-specific receptor of claim 1 to said male mammal.
30. A method of diagnosing infertility in a male mammal comprising measuring antibodies from said male to an epididymis-specific receptor.